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| 10/038,771 | 01/08/2002 | Matthew Boyd | 7373/72556 | 6313 |

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| EXAMINER |
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FISCHER, JUSTIN R

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| ART UNIT | PAPER NUMBER |
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1733

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/038,771

Applicant(s)

BOYD ET AL.

Examiner

Justin R. Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-20, 22, 23, 25-29, 31-41 and 44-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-20, 22, 23, 25-29, 31-41 and 44-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 12, 20, 22, 23, 25-29, and 44-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Hedman (GB 2,015,915, of record) and further in view of Barron (US 6,030,575, of record). Hedman (Abstract) discloses a method of forming a preform comprising the steps of providing chopped fiberglass, providing binder material, mixing said fiber glass and said binder and applying a stream of the mixture to a support surface or former 14, and solidifying the mixture (preform is described as "bonded preform"). In describing the support surface, Hedman states that it can be a perforated sheet, which is seen to constitute a solid support surface in view of applicant's disclosure (particularly the dependency of claim 23, which further limits the structure of a "solid support surface" by requiring apertures in the surface, on claim 1). While Hedman fails to suggest any shaping of the assembly before it is solidified, the technique of "shaping" is well known and extensively used in the manufacture of preforms, as shown for example by Barron (Column 10, Lines 3-10). This technique is used to achieve a desired shape of the preform before it is incorporated into a composite article. It is noted that Barron suggests that the shaping can occur as the preform is made (analogous to that required by the claimed invention) or just prior to

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arranging the preform in a mold. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to shape the assembly of Hedman prior to solidifying.

As to claims 2, 3, 5, and 46, the method of Hedman does not include forced air, a plenum system, or a vacuum. It is noted that while Hedman mentions the use of a suction fan, the reference clearly envisions embodiments in which no fan is required (reference suggests that a fan may be used "in certain applications").

Regarding claims 12 and 45, both the reinforcing material and the binder (plurality of streams) are supplied as a stream to a region adjacent the support surface, at which time the components are mixed and disposed against said support surface.

As to claim 20, the method of Hedman is applicable with vertical surfaces (Page 2, Lines 35-45)- it is emphasized that the method does not require the use of a suction fan as it is described as being used "in certain applications".

With respect to claim 22, ambient conditions exist at the deposition region of the support surface.

As to claim 25, after the fibers and binder are deposited on the support surface, the assembly is cured. It is clearly evident that after curing, the assembly is exposed to ambient conditions, which is seen to constitute a "cooling" step. It does not appear that applicant intends such language to require the preform be placed within a cooling chamber or similar cooling zone/region.

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As to claims 26, 28, 29, and 44, the method of Hedman comprises placing said preform in a mold, injecting resin (moldable material) into said mold, and curing the assembly. (Page 2, Lines 70-80).

Regarding claim 27, Hedman discloses the potential use of a vacuum.

With respect to claim 40, as noted above, the support surface of Hedman can be a perforated sheet and the use of a suction fan is only described "in certain applications".

3. Claims 9, 10, 13-19, and 31-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hedman and Barron and optionally in view of Hall. As disclosed above, Hedman substantially teaches the method of the claimed invention, including the deposition/spraying of chopped fiberglass and a binder against a support surface to define a preform and the subsequent placement of said preform in a mold. In this instance, though, Hedman is completely silent as to any pre-heating of the binder. Barron, on the other hand, is similarly directed to the manufacture of a preform and suggests that a pre-heating treatment (of the binder) promotes bonding between the fibers and the binder by partially melting said binder prior to contact with the fibers (Column 6, Lines 30-55). Hall is optionally applied since it provides further evidence that it is well known to heat a binder prior to contact with a fiber reinforcement in the manufacture of a preform (Column 6, Lines 27-50). One of ordinary skill in the art at the time of the invention would have found it obvious to supply the binder stream of Hedman as a "heated" stream for the benefits detailed above absent any conclusive showing of unexpected result.

Regarding claim 13 and 14, Barron broadly suggests that the binder can be conditioned or heated at any time prior to contact with the fibers and thus, one of ordinary skill in the art at the time of the invention would have found it obvious to heat the binder prior to emitting the stream of binder (Column 8, Lines 19+). It is emphasized that while the binder is conditioned after the stream of said binder is emitted in a preferred embodiment of Barron, the reference more generally suggests the inclusion of a pre-heating step. Hall provides one example of a similar fiber/resin application system in which the binder can be heated in the supply tank (prior to being emitted) or in a region containing the stream of binder (Column 6, Lines 39-45).

As to claim 16, it is unclear if the claim positively requires a heating step after the binder and fiber are mixed. It is evident that the mixture is heated (heat is spread through the mixture) over a certain extent due to the conditioning of the binder. This zone is seen to constitute a heat zone.

Regarding claims 18 and 35, the zone in which the fibers and the binder are mixed is seen to constitute a "heat zone" in that the heated binder affects the temperature of said zone. It is further noted that the claim does not appear to require the mixing of a heated binder and a fiber reinforcement in a zone that is further heated (in addition to that applied to the binder).

With respect to claims 19 and 36, Barron suggests that a flame represents a suitable heat source.

As to claims 32 and 33, the method of Hedman does not include forced air or a plenum system. It is noted that while Hedman mentions the use of a suction fan, the

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reference clearly envisions embodiments in which no fan is required (reference suggests that a fan may be used "in certain applications").

With respect to claim 37, the method of Hedman supplies chopped fiberglass to a support surface or former 14.

As to claim 38, while Hedman appears to depict a horizontal support surface, one of ordinary skill in the art at the time of the invention would have found it obvious to provide the support surface in a vertical arrangement as such an arrangement is commonly used in similar fiber/resin applications. Hall provides one example of such a method in which incorporating a vertical support surface.

Regarding claim 39, Hedman teaches that the former can be suitably made of a foraminous material (Page 2, Lines 28-35)- this language suggests that such an arrangement represents a preferred embodiment. In this instance, the embodiment is exemplary and one of ordinary skill in the art at the time of the invention would have equally found it obvious to form the support surface as a "solid" surface depending on the product being manufactured. It is further noted that Hedman suggests arrangements in addition to perforated sheets. Lastly, there is a reasonable expectation of success in practicing the method of Hedman with a solid support surface- being that there is no requirement for a plenum system or vacuum, it does not appear that the support surface is required to be perforated.

Regarding claim 40, as noted above, the perforated sheet of Hedman is seen to constitute a "perforated support surface" and in view of Barron, it would have been obvious to condition or heat the binder prior to contact with the fiber reinforcement.

Response to Arguments

4. Applicant's arguments filed February 15, 2005 have been fully considered but they are not persuasive. Applicant only notes that the claims have been amended to specifically include a "shaping" step to manufacture the preform. In light of this amendment, the rejections with Hall have been withdrawn. However, the Non-Final Office Action mailed on November 15, 2004 did include a set of rejections (Hedman in view of Barron) dealing with a "shaping" step to manufacture the preform- these rejections have been maintained above. It is additionally noted that applicant has amended the claims in a manner that requires a new combination of previously recited features, particularly a shaping step in combination with a heating step. As such, a plurality of claims previously rejected with Hall have been included in the rejections above (with Hedman). It is emphasized that the new rejections were necessitated by applicant's amendment in the response dated February 15, 2005.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Justin Fischer

April 28, 2005


JEFF H. AFTERGUT
PRIMARY EXAMINER
GROUP 1300